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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,657

07/19/2006

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Q96084

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23373 7590 07/23/2009  
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EXAMINER

CLARK, GREGORY D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

07/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,657	<b>Applicant(s)</b> KUBOTA, HIROFUMI	
	<b>Examiner</b> GREGORY CLARK	<b>Art Unit</b> 1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 18 May 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7, 9 and 11-12 is/are pending in the application.  
     4a) Of the above claim(s) 8 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7, 9 and 11-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The examiner acknowledges receiving the applicants' arguments/remarks dated 05/18/2009. Claims: 7, 9 and 11-12 amended, 8 and 10 cancelled.

Rejections and objections made in previous office action that does not appear below have been overcome by applicant's amendments and therefore the arguments pertaining to these rejections/objections will not be addressed.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 7, 9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu (JP11-026155A) in view of Maruyama (20010041270).**

3. **Regarding Claims 7, 9 and 11-12**, Komatsu discloses a protection film for an electroluminescent element whereas the diamond-like carbon (DLC) protective film (abstract) has a hydrogen content of 50 atm%, preferably, below 45 atm%, it adjusts so

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that it may become 40 atm% (paragraph 12). Komatsu also discloses that the films are applied by a plasma CVD process (abstract). Komatsu fails to mention SiN, SiON, SiC, SiCN or the thickness of the protective film. The applicant claims a film thickness of 1-5 microns and a hydrogen content of not less than 30%.

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The examiner takes the position that diamond-like carbon (DLC) films and silicon based films such as SiN and SiO are well known in the art as protective films in electroluminescent devices. Moreover, electroluminescent devices are known to contain a pair of electrodes.

Maruyama discloses that organic light emitting devices (paragraph 2) can contain a protective film made of silicon nitride (SiN) or diamond-like carbon (paragraphs 61 and 62) to act as a passivation layer to effectively prevent moisture, oxygen or other materials from entering therethrough (paragraph 62).

In presenting silicon nitride (SiN) and diamond-like carbon as protective films commonly used in organic light emitting devices, Maruyama shows that these films are functional equivalent and would be expected to provide similar passivation properties in an electroluminescent device.

With a reasonable expectation of success, a person of ordinary skill in the art would have selected from known protective film materials such as silicon nitride (SiN) and diamond-like carbon and applied the protective film in a thickness range so as to provide an adequate passivation layer to effectively prevent moisture, oxygen or other materials from adversely affecting the efficiency of the electroluminescent device that would have included the thickness ranges claimed by the applicant.

**4. Claims 7, 9 and 11-12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (2003/0184217).**

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5. **Regarding Claims 7, 9 and 11-12**, Yamazaki discloses a protective thin film formed on a substrate which has a hydrogen content of 5 to 30 atm% (paragraphs 10 and 116). The protective film can be SiN, SiON (paragraph 247) or diamond like carbon (paragraph 116). Yamazaki discloses that the protective film is applied as thin as possible (paragraph 115).

The applicant claims a film thickness of 1-5 microns and a hydrogen content of not less than 30%.

Yamazaki also discloses a light emitting device with a light emitting element that emits fluorescent light or phosphorescent light upon application of electric field (EL device) to a pair of electrodes of the element which sandwich a layer containing an organic compound (organic luminescent layer between two electrodes) (paragraph 2). Yamazaki discloses further discloses that the protective film can be obtained by PCVD (plasma CVD) or sputter coating (paragraph 115).

Yamazaki disclosed the claimed invention except for the specific range of “a hydrogen content of not less than 30 at% and the film thickness of 1-5 microns. However, examiner believes that, “not less than 30%” as claimed would overlap a value 5 to 30% as taught by Yamazaki as 30% would be an overlapping value.

It has been held that a range of “more than 5%” would overlap a disclosure of 1-5%, *In re Wertheim*, 541 F. d. 257, 191 USPQ (CCPA 1976), *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d. 1934 (Fed. Cir. 1990).

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made, since it has been held that choosing

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the overlapping portion, of the range taught in the prior art and the range claimed by the applicant, has been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 USPQ 549. In this instance it would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected a value of 30 at % H in the films disclosed by Yamazaki with a reasonable expectation of producing a film having providing suitable hardness, oxygen and moisture resistance.

The applicant discloses that the protective film offers a barrier against oxygen and moisture damage (specification paragraph 5). The protective films disclosed by Yamazaki also protect against oxygen and moisture (paragraphs 154 and 156).

At the time of the invention a person of ordinary skill in the art with the teachings of Yamazaki could adjust the hydrogen concentration accordingly with the goal being to achieve suitable protection of the electroluminescent device against the potential damage caused by oxygen and moisture which would have included the overlapping portion of the hydrogen content range and the claimed thickness range of the applicant.

### ***Response to Amendment***

6. The prior art cited in this office action (Komatsu, Maruyama, and Yamazaki) each disclose an electroluminescent device which contents a protective film. The examiner counter the applicants' argument that the hydrogen content is only specified for the diamond like carbon film but not the silicon based protective films with the position that the SiN and diamond like carbon films function in the same capacity a passivation layer

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to effectively prevent moisture, oxygen or other materials from adversely affecting the efficiency of the electroluminescent device. The applicant describes a similar function in the specification paragraph 5.

SiN and diamond like carbon films are commonly used protective films and the thickness/ hydrogen content would have been adjusted to reach a suitable level of protection against moisture, oxygen or other materials. The hydrogen content and film thickness are not viewed as patentable subject matter in the light of the prior art.

The applicant's arguments with respect to claims 7, 9 and 11-12 have been considered but are moot in view of the new grounds of rejection necessitated by the applicant's amendment.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is (571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1794

GREGORY CLARK/GDC/  
Examiner  
Art Unit 1794